



Natural Resources
Canada

Ressources naturelles
Canada

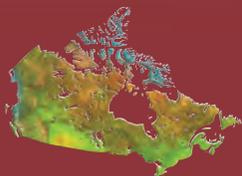


ENERGY STAR® Purchasing Guide



ecoENERGY
an ecoACTION initiative

Put ENERGY STAR to work for your organization



Canada



ABOUT ENERGY STAR®

The international ENERGY STAR symbol is an easy way for everyone from procurement professionals to individual consumers to identify products that are among the most energy efficient on the market. Only manufacturers and retailers whose products meet the ENERGY STAR criteria can use this symbol. Typically, a product must be among the top 25 percent of all makes and models on the market in terms of energy efficiency to qualify for the ENERGY STAR symbol.

The ENERGY STAR name and ENERGY STAR symbol are registered trademarks of the United States Environmental Protection Agency. Through international cooperation, the symbol has been adopted by countries around the world, including Canada. Natural Resources Canada's Office of Energy Efficiency (OEE) administers the ENERGY STAR symbol in Canada. The OEE enrolls participants in the program, promotes the ENERGY STAR symbol, and monitors its use across Canada.



The power of the ENERGY STAR symbol is in its simplicity. No special knowledge is needed to select an energy-efficient product, since the technical evaluation has been done for you. All you have to do is look for the symbol on product packaging, in product literature and advertising and, of course, on products themselves.

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Why purchase ENERGY STAR qualified products?

To save money

ENERGY STAR qualified products use up to 65 percent less energy than non-qualified products (some products also use less water), and that saves your organization money. In many cases, energy-efficient products can quickly pay for themselves and provide significant ongoing savings over the life of the product, making funds available for investment in other areas. And you do not need to worry about performance – ENERGY STAR qualified products perform as well as or better than standard products.

To reduce energy demand

Reducing energy consumption helps utilities manage their peak loads and avoid the need to construct new power plants or transmission facilities, which are expensive to build and often have significant environmental impacts.

To help the environment

The combustion of fossil fuels, whether to operate equipment (e.g. furnaces) or to produce electricity (a significant portion of Canada’s electricity is produced this way), generates greenhouse gas (GHG) emissions that are a leading cause of climate change. Burning fossil fuels also generates other pollutants that contribute to urban smog and acid rain. Choosing ENERGY STAR qualified products will help your organization use less energy – and that means a healthier environment for both current and future generations.

For more information

For more information, visit the ENERGY STAR Web site at www.energystar.nrcan.gc.ca.

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ABOUT THIS GUIDE

This guide is designed to help your organization buy and promote energy-efficient products while working within your own purchasing framework and rules. This second edition has been revised and updated to include new information and new tools that will make it easier than ever to identify and select the most energy-efficient products available on the market. (The first edition was published in 2005.)

This guide is for procurement officials in

- governments: federal, provincial/territorial and municipal
- institutions: hospitals, schools, colleges and universities
- businesses: industrial and commercial
- bulk purchasing organizations
- sector and trade associations
- housing authorities and building/property management groups
- non-government organizations

What's inside

- explanation of the benefits of ENERGY STAR qualified products
- how to use and promote ENERGY STAR in your organization
- list of products that are eligible for the ENERGY STAR symbol
- information on Government of Canada initiatives that encourage the purchase of energy-efficient products
- step-by-step implementation plan for energy-efficient purchasing
- examples of procurement language for ENERGY STAR qualified products
- tools to help you make the business case for ENERGY STAR qualified products
- information on specific products, such as computers and lighting
- additional resources



BECOME A PARTICIPANT: USING AND PROMOTING ENERGY STAR IN YOUR ORGANIZATION

The first and best way to use ENERGY STAR in your organization is to purchase products that qualify for the ENERGY STAR symbol. As we already noted, this practice will save you energy and money and help protect the environment. There are also many other ways organizations can use and support ENERGY STAR:

- **Federal/provincial/territorial/municipal governments** can show leadership by using ENERGY STAR as the benchmark for energy efficiency or environmental programs and by revising their procurement policies to favour energy-efficient and environmentally preferred products, including specific references to ENERGY STAR.
- **Sector and trade associations** can promote the benefits of ENERGY STAR to their members.
- **Environmental organizations and community groups** can educate consumers about the benefits of choosing ENERGY STAR qualified products and promote efficient use of energy.
- **Utilities** can encourage responsible, efficient use of energy by promoting the purchase and use of ENERGY STAR qualified products, including by offering rebates and other incentives.
- **Distributors and retailers** can make sure they stock ENERGY STAR qualified products. Also, they can promote products that qualify, educate consumers at point of purchase, and feature ENERGY STAR qualified products in their advertising.
- **Manufacturers** of energy-using equipment can promote ENERGY STAR if any of their products meet ENERGY STAR specifications, and can display the symbol on qualifying products.
- **Housing authorities and building/property management groups** can purchase ENERGY STAR qualified products for their buildings and promote the benefits and efficient use of these products to their tenants.

DID YOU KNOW ...

ENERGY STAR is the international symbol for energy efficiency – a simple way to identify products that are among the top energy performers on the market. Depending on the type of product you are buying, choosing an ENERGY STAR qualified model can help reduce energy consumption and costs by 10 to 65 percent in comparison with a conventional product.



In fact, why not become an ENERGY STAR Participant?

By agreeing to promote and use the ENERGY STAR symbol, your organization becomes part of a dynamic government/industry partnership that is expanding around the world.

For more information on how to become an ENERGY STAR Participant, e-mail your request to equipment@nrcan.gc.ca or fax it to 613-947-5286.

ELIGIBLE PRODUCTS



Office equipment

Computers (desktop, laptop and enterprise servers), monitors, fax machines, copiers, digital duplicators, printers, combination printer/fax machines, scanners, multi-function devices, mailing machines, bottled-water coolers, external power adapters



Household appliances

Clothes washers, refrigerators, freezers, refrigerator-freezers, dishwashers, dehumidifiers, bottled-water coolers



Heating, cooling and ventilation equipment

Room and central air conditioners, residential furnaces (gas, propane and oil), residential boilers (oil and gas), heat pumps (air-source and ground-source), ventilating fans, ceiling fans, programmable thermostats, water heaters



Consumer electronics

TVs, DVD players, combination units (such as a TV/DVD player combination), home audio products, digital-to-analog converter boxes, external power adapters, cordless telephones, answering machines



Lighting

Compact fluorescent lamps (CFLs), also known as compact fluorescent light bulbs, residential light fixtures, decorative light strings, solid state lighting (SSL) luminaires



Windows and doors

(installed in buildings of three or fewer stories and used for residential or light commercial purposes)
Windows, sliding glass doors, entry doors, sidelights, transoms, skylights



Commercial products

Clothes washers, solid-door refrigerators and freezers, dishwashers, ice makers, cooking equipment (fryers, hot food holding cabinets and steam cookers)

How do products qualify?

To qualify for the ENERGY STAR symbol, products must meet or exceed technical specifications endorsed by the Government of Canada. Requirements vary between product categories, but typically a product must be from 10 to 65 percent more efficient than standard equipment. For an up-to-date list of product models that are ENERGY STAR qualified, as well as new product categories, visit www.energystar.nrcan.gc.ca.



Vending machines – An ENERGY STAR success story

Refrigerated beverage vending machines are an example of how ENERGY STAR and Canada's *Energy Efficiency Regulations* are driving the market towards increased energy efficiency.

To comply with the Regulations, new beverage vending machines sold in Canada must have a low-power mode to reduce energy use during times of inactivity – and this feature *must* be enabled when the product is shipped.

This regulation effectively means that all new beverage vending machines sold in Canada are energy efficient. As a result, new vending machines are no longer included in the ENERGY STAR lineup.



Since there is no need to differentiate between models – they are all good energy performers!

However, the ENERGY STAR specification for rebuilt beverage vending machines is still in effect. If you are purchasing a rebuilt machine, be sure to look for the ENERGY STAR symbol.



What about products that are not in the ENERGY STAR program?

Some types of energy-using products are not eligible to use the ENERGY STAR symbol. Nevertheless, information is available about the energy efficiency of these products.

The OEE's Web site offers valuable information and tools to help energy-wise organizations make the right choices when purchasing **motors, pumps, transformers, lighting, compressors, boilers, signage and other energy-using equipment.** **CanMOST** (Canadian Motor

Selection Tool), for example, is a free software tool that allows users to quickly and easily determine the energy and cost savings associated with any motor purchase, repair or replacement decision.

For more information, visit www.oeenrcan.gc.ca/industrial/equipment/products/index.cfm?attr=12.

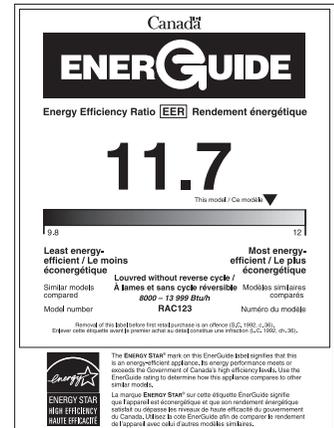
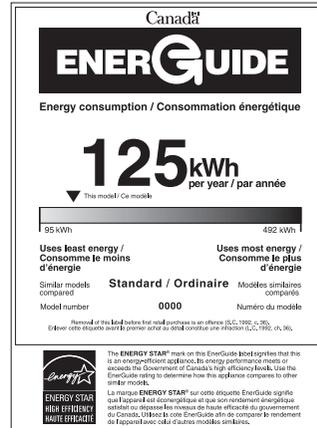
ENERGY STAR AND ENERGUIDE – A WINNING TEAM

ENERGY STAR complements Canada's other energy efficiency labelling initiative – the EnerGuide for Equipment Program.

EnerGuide labels are mandatory on all major electrical household appliances and room air conditioners sold in Canada, regardless of whether they are good energy performers. There are also EnerGuide labels for central air conditioners, heat pumps, residential gas furnaces and gas fireplaces, which are usually found in the product literature.

The EnerGuide label allows consumers to compare the energy consumption of different models of a product. The label provides information about the energy performance rating of the particular model on which it appears, as well as a bar scale that makes it easy to compare the model to others of the same size and class.

The ENERGY STAR symbol, on the other hand, appears only on products that meet or exceed high levels of energy efficiency. When the ENERGY STAR symbol appears on a product or its packaging or literature, with or without the EnerGuide label, it means that the product is among the most energy efficient available.



The Environmental Choice[™] Program



While ENERGY STAR and the EnerGuide labelling program focus attention on a product's energy performance, Environment Canada's Environmental Choice Program (ECP) is a multiattribute environmental certification label.

The ECP, with its EcoLogo[™] symbol, has certified more than 3000 products and services as environmentally responsible. These products include tires, cleaners, office equipment, electricity and paints, and the services include printing and car washes.

All relevant environmental factors are addressed by the ECP requirements, including energy efficiency, harmful emissions, recycled content and water use. The program also considers environmental impacts during all relevant stages of the product's life cycle (production, disposal and recycling). For more information, visit www.ecologo.org.

NATURAL RESOURCES CANADA: OFFICE OF ENERGY EFFICIENCY

The Office of Energy Efficiency (OEE) is Canada's centre of excellence for energy conservation, energy efficiency and alternative fuels information. It provides practical advice to consumers, school boards, businesses, institutions and all levels of government (federal, provincial/territorial and municipal). The OEE is playing a dynamic leadership role in helping Canadians save millions of dollars in energy costs while contributing to a healthier environment.

ENERGY STAR is just one example of how the OEE is working to improve the energy efficiency of products and equipment sold in Canada. Among other initiatives, the OEE also administers Canada's *Energy Efficiency Regulations* and ecoENERGY Retrofit grants and financial incentives.

Energy Efficiency Regulations

The *Energy Efficiency Regulations* set minimum performance requirements for a range of energy-using products, with the objective of eliminating the least energy-efficient models from the Canadian market. The Regulations apply to specific types of energy-using products imported into Canada or manufactured in Canada and shipped from one province to another. For some products, the Regulations are used as a benchmark for ENERGY STAR qualification. For example, most refrigerators must be 20 percent more efficient than the regulated minimum federal standard to qualify for ENERGY STAR.

For more information on the *Energy Efficiency Regulations*, including a list of what types of products are regulated, visit www.oeenrcan.gc.ca/regulations.

ecoENERGY Retrofit

The ecoENERGY Retrofit Incentive for Buildings provides financial support to owners of small and medium-sized buildings in the commercial and institutional sectors to help them implement energy-saving projects. Eligible organizations may receive up to \$10 per gigajoule (GJ) of estimated energy savings, 25 percent of eligible project costs or \$50,000 per project. Find out more at www.oeenrcan.gc.ca/commercial/financial-assistance/existing/retrofits/index.cfm?attr=0.

ecoENERGY Retrofit – Homes is available to owners of single-family homes, including detached, semi-detached and low rise multi-unit residential buildings. Property owners (including social housing entities) can qualify for federal grants by improving the energy efficiency of their homes and reducing their home's impact on the environment. The maximum grant per home or multi-unit residential building is \$5,000, and the total grant amount available to one individual or entity for eligible properties over the life of the program is \$500,000. For more information, visit www.oeenrcan.gc.ca/residential/personal/home-improvement.cfm?attr=0.

The ecoENERGY Retrofit Incentive for Industry offers a financial incentive of up to 25 percent of project costs, to a maximum of \$50,000 per application and \$250,000 per corporate entity, to help small and medium-sized industrial facilities implement energy-saving projects. More information is available at www.oeenrcan.gc.ca/industrial/financial-assistance/retrofit/index.cfm?attr=0.

ecoACTION: Using Less – Living Better

For a complete list of Government of Canada initiatives to help protect the environment and save energy, including grants and incentives for consumers and organizations, visit www.ecoaction.gc.ca.

Interested in other grants and incentives?

Visit the following Web sites:

- energy-efficient equipment www.oe.nrcan.gc.ca/corporate/incentives.cfm?attr=0#equipment
- ENERGY STAR qualified products www.oe.nrcan.gc.ca/corporate/incentives.cfm?attr=0#products
- regional incentives for commercial and institutional buildings and equipment www.oe.nrcan.gc.ca/commercial/financial-assistance/index.cfm?attr=20



GOVERNMENT OF CANADA *POLICY ON GREEN PROCUREMENT* OFFICE OF GREENING GOVERNMENT OPERATIONS

As one of the biggest buyers of goods and services in the country, the Government of Canada is committed to greening its procurement operations. The *Policy on Green Procurement* came into effect in April 2006 and aims to ensure that the government cost effectively procures, operates and disposes of its assets in a manner that protects the environment and supports sustainable development objectives. The policy applies across all four stages of the life cycle of goods and services, from planning and acquisition through use and disposal.

The Office of Greening Government Operations (OGGO) provides assistance in implementing the *Policy on Green Procurement*. OGGO is part of Public Works and Government Services Canada, the main procurement arm of the federal government. OGGO provides advice and guidance to federal departments and agencies to accelerate the greening of government operations, including procurement.

Individual departments and agencies are responsible to implement the *Policy on Green Procurement*. If you are a procurement officer in the federal government, you should familiarize yourself with this policy, which requires that environmental impacts be included as a key consideration in procurement decision making. Specifying ENERGY STAR qualified equipment is recognized as an effective means of supporting the objectives of the *Policy on Green Procurement* and reducing impacts of federal procurement on the environment. The policy can be viewed at www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/index-eng.html.

For more information, visit the OGGO Web site at www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html.

Online green procurement training

Green procurement training is now available through *CampusDirect*, the online campus of the Canada School of Public Service. The course is free for federal departments and agencies and takes two to four hours to complete.

Visit www.cspc-efpc.gc.ca/cdirect/index-eng.asp to get started! After you log in, in the Search Catalogue box, enter course code C215 and click OK. Click the French or English version of the Green Procurement course, and in the next screen, click Add to Cart. Click Register and the course will be added to your learning activities. You can then access the course from the My Learning Activities folder.

SIX STEPS TO IMPLEMENTING ENERGY-EFFICIENT PURCHASING

STEP 1: Make a commitment and assess opportunities.

To be successful, your organization's commitment to purchasing energy-efficient products needs to start at the top.

- Senior management should take ownership of a policy (written, if possible) that provides clear direction to procurement officials to integrate energy efficiency considerations into their decision-making processes. This integration can be as simple as stipulating the purchase of ENERGY STAR qualified products, whenever possible and feasible.
- After this policy is in place, be proactive in assessing opportunities for green procurement.
- Consider forming a "green procurement team" (which may include a range of staff, from product specifiers to purchasers) to brainstorm ideas, review existing procurement practices, determine current volumes of green purchasing and develop green procurement language to guide future purchasing.

STEP 2: Develop an action plan.

Work with the green procurement team to develop an action plan. (Active staff involvement in program development encourages broad support.) The action plan should include a business case for purchasing ENERGY STAR qualified products; an explanation of how procurement practices will be changed; information on how the changes will be communicated to suppliers, procurement staff and other employees; and specific timelines for each step in the plan's implementation.

A good action plan will

- identify products in the workplace to be replaced by ENERGY STAR qualified products

- identify energy-using equipment that is critical to the organization's operations and develop a procurement and implementation plan to ensure that, on an emergency basis, this equipment will be replaced with the most energy-efficient equipment possible
- set target dates for revising procurement policies and contracts to incorporate green procurement language (see examples throughout this guide)
- set specific goals and timelines for purchasing ENERGY STAR qualified products and disposing of old products in an environmentally responsible manner (e.g. recycling)
- identify tools, communications materials and training that may be needed to support green procurement
- provide step-by-step directions for procurement staff

The OEE's ENERGY STAR Web site has resources that can help you develop and implement a green procurement action plan, including the

- Purchasing Toolkit (see the box on page 13 for more information)
- ENERGY STAR Simple Savings Calculator and ENERGY STAR Summary Calculator (explained in more detail later in this guide)

To access these resources, go to **www.energystar.nrcan.gc.ca**, click English and click Information for businesses and organizations.



STEP 3: Implement the action plan.

A senior procurement official should be assigned responsibility for ensuring that the action plan for green procurement is fully and consistently implemented across the organization. This task includes

- making sure the right tools and training are provided to support the goals of the action plan
- being available to offer advice and assistance to other procurement officials
- keeping up-to-date about ENERGY STAR program developments and new qualified products and relaying this information to other staff
- convening regular meetings of the green procurement team to share ideas and discuss progress

STEP 4: Make it rewarding.

One good way to encourage purchasing officials to change their buying habits is to recognize green procurement achievements within the organization. For example, rewards or incentives could be offered to procurement staff who meet targets for ENERGY STAR procurement or to staff who identify new energy-efficient products and services. Why not recognize exceptional performance and leadership in energy-efficient purchasing by presenting staff with ENERGY STAR qualified products, such as CFLs, ceiling fans or programmable thermostats?

STEP 5: Track purchases and measure progress.

Tracking purchases of energy-efficient products will help your organization assess the effectiveness of its green procurement action plan:

- Your existing financial/procurement system may allow green purchases to be tracked; if not, consider creating a separate database for this task.
- Tracking identifies which green products are being purchased.

- Tracking can also reveal areas of green procurement that are being overlooked. This can allow you to take corrective action, including increasing awareness among procurement staff of what products qualify as green purchases.

Another way to demonstrate progress is to estimate the energy and cost savings, as well as reduced emissions, your organization has achieved by buying ENERGY STAR qualified products. Review your action plan on a regular basis to consider changes and improvements that might be needed and to add new ENERGY STAR qualified products and procurement goals.

STEP 6: Report on progress.

Reporting on progress can help build momentum for green procurement within your organization and encourage employees to adopt similar practices at home. It can also validate the decision by management to implement a green procurement policy and encourage similar support for future initiatives.

- Identify success stories and energy efficiency leaders in your organization and communicate them to staff and management through e-mails, Web sites, employee newsletters, staff meetings, etc.
- Use every opportunity to reinforce the message that using energy efficiently is good for business (cost savings) and for the environment (cleaner air and reduced GHG emissions).
- If you work in the public sector, you may be required by legislation or government policy to report formally on your green procurement initiatives.



Purchasing Toolkit

The ENERGY STAR Purchasing Toolkit was developed to make it easier for procurement officers and others to purchase energy-efficient products. The Toolkit

- provides additional information on the benefits of energy efficiency
- explains how to address common purchasing barriers, including lack of information, first-cost bias and life-cycle cost-analysis requirements
- provides clear answers to questions about energy efficiency specifications, product performance and costs and how to find products
- provides purchasing guidelines for each product type

ENERGY STAR – Planning and reporting

Follow this step-by-step process to help your organization plan and report on your ENERGY STAR activities.

1. Integrate ENERGY STAR into corporate purchasing policies and procedures.
2. Identify communications tools to support and publicize the purchase of ENERGY STAR qualified products.
3. Identify green procurement training needs.
4. Identify products that are purchased regularly and are part of the ENERGY STAR program in Canada.
5. Identify the frequency of purchases and when the next round of purchasing is anticipated.
6. Estimate the number of products purchased annually (both past and future).
7. Create a link to ENERGY STAR purchasing guidelines and the ENERGY STAR Simple Savings Calculator and ENERGY STAR Summary Calculator.
8. Track ENERGY STAR purchases and the resulting energy, cost and GHG emissions savings.

Communicating the ENERGY STAR message in your organization

Use this checklist to promote ENERGY STAR in your organization.



E-mail

- ✓ Send a message to all staff that explains why your organization is purchasing ENERGY STAR qualified products.
- ✓ Draw attention to the ENERGY STAR qualified products employees are already using and how this practice is benefiting your organization and community.

Web sites

- ✓ Use your organization's Intranet site to generate awareness about ENERGY STAR.
- ✓ Provide updates on your organization's green procurement progress by posting information on energy and financial savings that have been achieved by purchasing ENERGY STAR qualified products.

Lunch room bulletin boards and newsletters

- ✓ Post green procurement announcements and updates in high-traffic areas such as lunch rooms.
- ✓ Publish articles about green procurement activities and success stories in your organization's newsletter.
- ✓ Put a suggestion/tips box in a highly visible area.

Information sessions, contests and giveaways

- ✓ Prepare and deliver presentations on ENERGY STAR.
- ✓ Post presentation materials on your organization's Intranet site.
- ✓ Run contests and giveaways in conjunction with information sessions about ENERGY STAR. For example, present ENERGY STAR qualified CFLs to employees who correctly answer questions about the ENERGY STAR initiative.

Looking for more ideas?

Have a look at the *ENERGY STAR Procurement Toolkit for Municipalities*, a publication developed by the Clean Air Partnership. Although the Toolkit is designed specifically for municipal governments, it contains information, ideas

and tips that can be used by many large organizations to increase their purchasing of ENERGY STAR qualified products. View the Toolkit at www.cleanairpartnership.org/pdf/energy_star_toolkit_05.pdf.

THE PROCUREMENT OFFICER IS A KEY PARTNER IN CANADA'S ENERGY STAR INITIATIVE

The procurement process is an opportunity to bring together key players who, collectively, can improve the way our economy makes, uses, recycles and disposes of materials. As the link between product makers and users, the procurement officer plays a central role in transforming the economy towards increased energy efficiency.

As a procurement officer, you should

- be aware of and knowledgeable about all types of products that qualify for ENERGY STAR
- understand the business case behind buying ENERGY STAR qualified products, as well as the environmental benefits offered by these products
- always be on the lookout for opportunities to increase the use of ENERGY STAR qualified products in your organization
- use this guide and the tools and resources on the ENERGY STAR Web site to compare ENERGY STAR qualified products to standard equipment
- visit the ENERGY STAR Web site regularly for notices about upcoming changes in ENERGY STAR qualification criteria or the introduction of new products to the ENERGY STAR lineup
- watch for rebates and other incentives to purchase ENERGY STAR qualified products
- make sure both your manager and your “clients” (the people you are purchasing equipment for) are aware of product models that qualify for ENERGY STAR
- request detailed specifications for ENERGY STAR qualified products from the manufacturer and share them with your manager and clients

Beyond looking for the ENERGY STAR symbol, a procurement officer should also

- be informed – and inform others – about life-cycle information for products you regularly purchase
- know what types of questions to ask suppliers regarding a product's life cycle (e.g. how much energy and water is consumed in making, as well as using, the product; how is the product made; what is its service life; what are the recycling/disposal options)
- take advantage of green procurement training opportunities in your area
- be aware of other attributes, aside from energy efficiency, that could make a product appealing from an environmental perspective
- be prepared to identify alternatives to products that your organization is currently purchasing that may be harmful to the environment

Looking for sample procurement language?

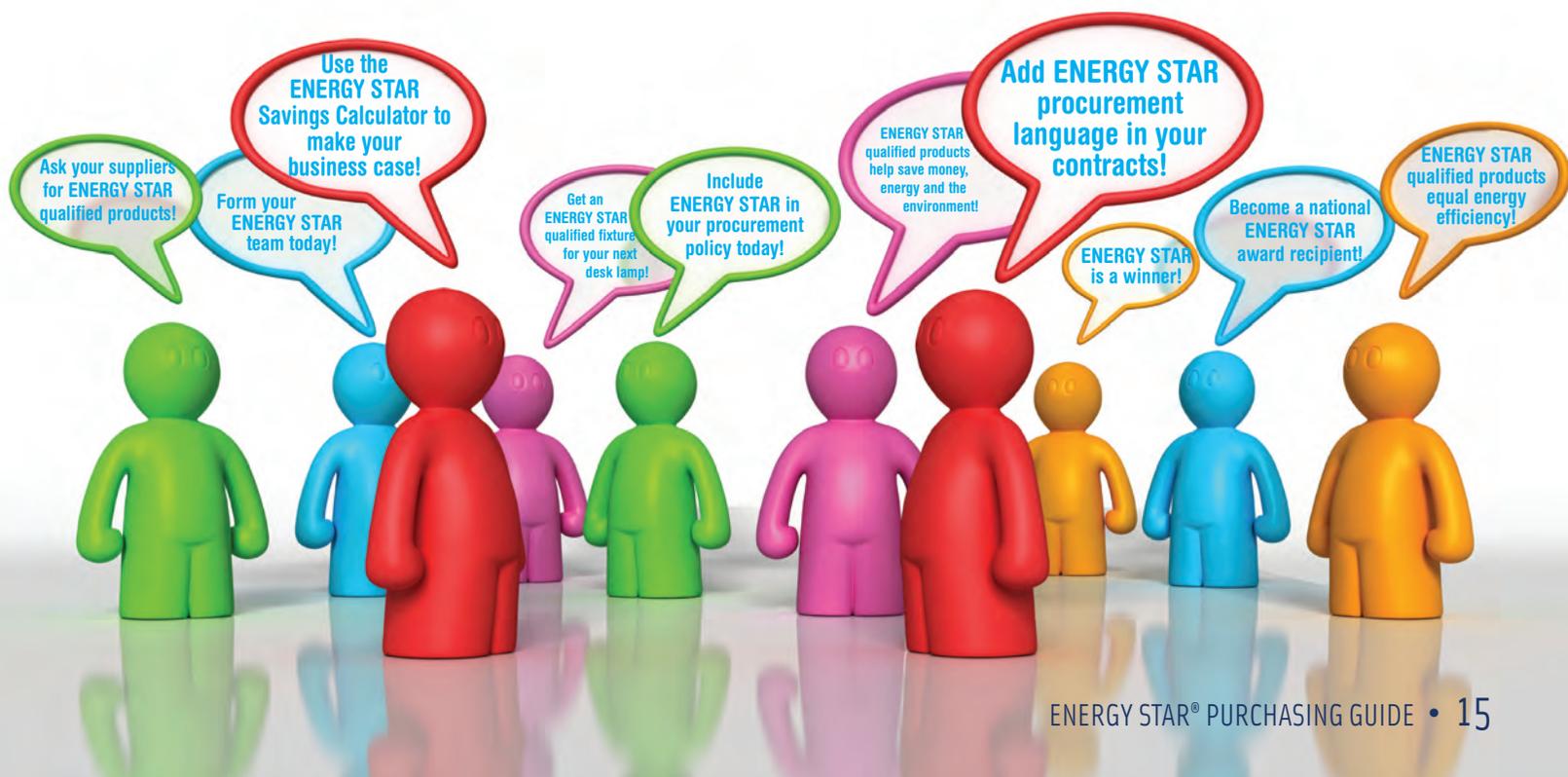
New products are added to the ENERGY STAR lineup in Canada on an ongoing basis. As well, technical specifications for existing products are revised from time to time, to ensure that qualified products continue to represent only the top energy performers on the market.

When preparing tender documents and contracts, it is important to use the most current information to ensure that the products you purchase meet the ENERGY STAR criteria. Sample procurement language for ENERGY STAR qualified products is available on the ENERGY STAR Web site (energystar.nrcan.gc.ca). Click Information for businesses and organizations, scroll down to Purchasing guidelines by product category and then choose the type of product you are purchasing to display language that can be inserted in tender documents and contracts, as well as information on the specifications and attributes of ENERGY STAR qualified equipment.

The following generic procurement language can be used to specify the purchase of all ENERGY STAR products:

“The vendor must provide products that are qualified to use the ENERGY STAR symbol and meet the ENERGY STAR specifications for energy efficiency. Complete product specifications and an up-to-date listing of qualified products are available at www.oeenrcan.gc.ca/energystar.”

If you are buying products that won't be delivered for several weeks or months, find out if the ENERGY STAR specifications for the product are scheduled to change during that period. Notices about upcoming changes in specifications are posted on the ENERGY STAR Web site. If new specifications are coming into effect for a product you are purchasing, include the new information in the tender documents or instructions to your supplier. This will ensure that the product meets the new ENERGY STAR specifications, and not the outdated requirements, at the time of delivery.



MAKING THE BUSINESS CASE FOR ENERGY STAR

Buying ENERGY STAR qualified products makes good business sense: these products use less energy than standard equipment, which means they cost less to operate. But how much can you expect to save?

The OEE has developed two tools to help you make a business case for ENERGY STAR procurement; access them on the Web at www.oee.nrcan.gc.ca/residential/business/energystar/procurement/calculator.cfm?attr=12.

- If you want to compare various models of a single type of product, use the **ENERGY STAR Simple Savings Calculator**.
- If you want to consider multiple types of products, use the **ENERGY STAR Summary Calculator**.



ENERGY STAR Simple Savings Calculator

The ENERGY STAR Simple Savings Calculator is an interactive software tool that shows procurement officials the direct economic and environmental benefits of purchasing ENERGY STAR qualified products over comparable non-qualified products. The Calculator can compare up to three qualified models of a single type of product with a conventional model at one time.

**AS SIMPLE AS 1-2-3,
THE CALCULATOR
COMPUTES**

- annual operating costs
- life-cycle costs
- the payback period
- total energy savings
- total cost savings

You enter local utility rates and various default values, conversion factors and other assumptions in to the Calculator, and it provides annual and lifetime energy and cost savings. If the product has a price premium when it is purchased, the Calculator provides a payback period. The tool also estimates the annual and lifetime GHG emissions reductions associated with purchasing qualified products compared to non-qualified products.

The following example illustrates the Calculator's inputs and outputs. It is based on the purchase of 20 bottled-water coolers (which are common equipment in many commercial, institutional and industrial settings) and uses the default data for ENERGY STAR qualified and non-qualified equipment.

Bottled-water coolers

Electricity rate by province (national average)

	ENERGY STAR	Non-ENERGY STAR	ENERGY STAR	Non-ENERGY STAR
	Cold-only bottled units		Hot and cold bottled units	
Number of units	20	20	20	20
Power consumption (*kWh/day)	0.16	0.29	1.20	2.18
Initial cost per unit (estimated retail price)	\$300	\$300	\$300	\$300
Assumed product lifetime (years)	10	10	10	10
CALCULATE				

*kWh is kilowatt hour

Bottled-water coolers

	ENERGY STAR	Non-ENERGY STAR	ENERGY STAR	Non-ENERGY STAR
	Cold-only bottled units		Hot and cold bottled units	
Annual operating costs*				
Energy cost	\$128	\$232	\$958	\$1,742
Energy consumption, kWh (annual)	1 168	2 124	8 760	15 927
Maintenance cost	\$0	\$0	\$0	\$0
Total annual operating operating costs	\$128	\$232	\$958	\$1,742
Life-cycle costs*				
Lifetime operating cost (energy and maintenance)	\$877	\$1,594	\$6,576	\$11,956
Energy costs (lifetime)	\$877	\$1,594	\$6,576	\$11,956
Energy consumption, kWh (lifetime)	11 680	21 236	87 600	159 273
Maintenance costs (lifetime)	\$0	\$0	\$0	\$0
Purchase price for 20 units	\$6,000	\$6,000	\$6,000	\$6,000
Total life-cycle costs	\$6,877	\$7,594	\$12,576	\$17,956

*Please note that all costs, except initial cost, are discounted over the product's life expectancy. Annual costs exclude the initial purchase price.

Benefits of ENERGY STAR

Qualified bottled-water coolers

Type of unit	Cold-only bottled units	Hot and cold bottled units
Number of units	20	20
Additional investment	\$0	\$0
Approximate savings (over product lifetime)	\$717	\$5,380
Net savings	\$717	\$5,380
Payback of the initial investment (includes annual maintenance and energy savings)	0.0	0.0
Detailed summary		
ENERGY STAR price premium	\$0	\$0
Total cost savings (annual)	\$105	\$784
Total cost savings (lifetime)	\$717	\$5,380
Total energy savings, kWh (annual)	956	7 167
Total energy savings, kWh (lifetime)	9 556	71 673
Total energy bill savings (annual)	\$105	\$784
Total energy bill savings (lifetime)	\$717	\$5,380
Total CO ₂ equivalent savings, kg (annual)	233	1 750
Total CO ₂ equivalent savings, kg (lifetime)	2 333	17 498
The Calculator also presents the reduction in carbon dioxide emissions.		
Equivalent in CO₂ emissions to planting approximately	25 trees	191 trees

kg is kilogram

CO₂ is carbon dioxide

ENERGY STAR Summary Calculator

The ENERGY STAR Summary Calculator is an “add-on” to the ENERGY STAR Simple Savings Calculator that allows procurement officials to develop scenarios for the purchase of multiple types of products at one time, rather than a single type of product. It is based on the difference between the average energy consumption of ENERGY STAR qualified equipment and the average energy consumption of non-qualified equipment for each product type (the same default data built into the Calculator). Users enter the number of product types to be purchased and the ENERGY STAR Summary Calculator estimates the annual and lifetime energy, cost and emissions savings resulting from the purchase of the ENERGY STAR qualified models.

The scenario below is for a social housing organization that manages 50 housing units.

Assume the organization purchases the following equipment	Estimated savings if all equipment is ENERGY STAR qualified (@ \$0.10/kWh and natural gas @ \$6.00/GJ)			
	Annual		Lifetime	
	Energy savings (\$)	Emissions savings (CO ₂) (kg)	Energy savings (\$)	Emissions savings (CO ₂) (kg)
10 commercial clothes washers	360	739	3,057	10 348
50 refrigerators (top freezer, auto-defrost)	391	874	3,692	14 850
50 vent fans without light (bathroom, utility room fans (1–75 cfm)	103	229	654	2 060
150 10-W CFLs (instead of 40-W incandescent bulbs)	828	1 604	3,274	8 020
500 15-W CFLs (instead of 60-W incandescent bulbs)	3,957	8 020	15,757	40 099
100 29-W CFLs (instead of 100-W incandescent bulbs)	1,207	2 531	4,831	12 653
50 gas furnaces	3,704	30 839	35,955	555 105
50 room air conditioners, window-mounted (louvered side, <6,000 Btu/hr)	234	522	1,899	6 783
Total	10,784	45 358	69,119	649 928

The scenario shows estimated lifetime energy cost savings of more than \$69,000 by purchasing ENERGY STAR qualified products. As well, almost 650 000 kg of CO₂ emissions would be avoided – equivalent to removing 300 cars from the road annually or planting more than 131 000 trees to remove carbon dioxide from the atmosphere.



SPOT THE ENERGY STAR PURCHASING OPPORTUNITIES

All levels of government, businesses and institutions across Canada can save energy and money (and in some cases, water) and help the environment by adopting strategies for purchasing energy-efficient products. ENERGY STAR makes it easy!

DID YOU KNOW ...

- Commercial fryers that meet the ENERGY STAR specifications are up to 25 percent more energy efficient than conventional models.
- ENERGY STAR qualified hot food holding cabinets are up to 60 percent more efficient than standard equipment.
- An ENERGY STAR qualified commercial ice maker is about 10 percent more efficient than a conventional model, and could save you hundreds of dollars a year in electricity costs, depending on the machine's size and usage.

The OEE's ENERGY STAR Web site (www.energystar.nrcan.gc.ca) offers detailed information about qualified products, as well as useful tools that can help your organization make a business case for green procurement. Here are some ideas to get you started!

Sample procurement language

Organizations making bulk purchases or entering into lease or maintenance agreements can include the following provisions, where applicable, in procurement documents and contracts:

The vendor must

- deliver all qualified products properly configured for current ENERGY STAR specifications
- ensure that installation services include the full activation and proper configuration of any automatic energy-saving, power-down and/or power management features
- ensure that maintenance services include the full reactivation and proper reconfiguration of any automatic energy-saving, power-down and/or power management features to the terms of the current ENERGY STAR specifications at the time of service
- customize sites and train users in order to maximize the energy efficiency of installed products
- not disable power-management features except at the request of site staff
- provide ongoing customer support on all energy-saving, power-down and power management features

Attention food services managers

Commercial cooking equipment is one of the newest additions to the ENERGY STAR lineup in Canada, and food service operations are the big winners. Restaurant and commercial kitchen owners and operators can now savour the reduced energy consumption that comes with purchasing ENERGY STAR qualified commercial fryers, hot food holding cabinets and steam cookers. Commercial dishwashers, commercial ice makers and commercial solid door refrigerators, freezers and ice cream freezers can also qualify for ENERGY STAR. Some types of qualified equipment, such as commercial dishwashers, save water as well as energy.

Attention social housing authorities and landlords

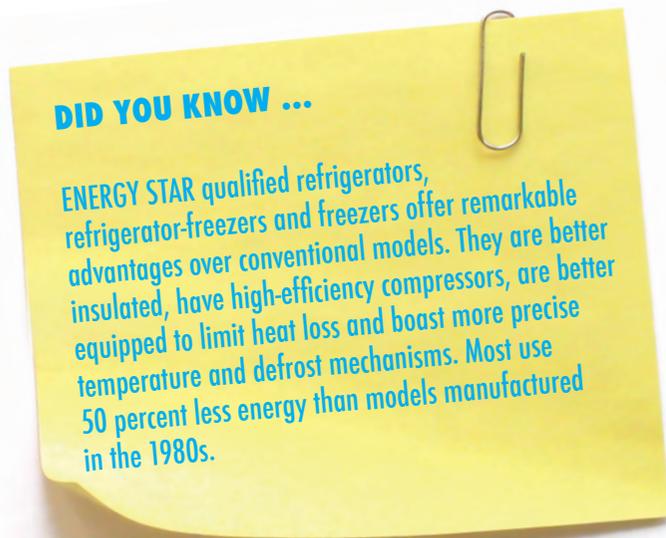
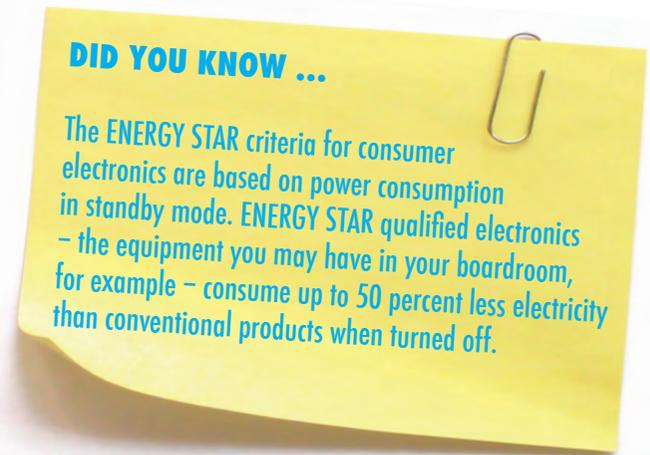
Social housing authorities and owners of rental properties are often responsible for providing kitchen appliances for each unit and laundry equipment in a central location. Purchasing ENERGY STAR qualified refrigerators, dishwashers and commercial clothes washers is a good investment that will save you (or your tenants) money for as long as you own the equipment. (See the sample scenario for social housing providers on page 19.) Also, consider installing ENERGY STAR qualified CFLs, light fixtures and other energy-efficient lighting in your units.

Attention accommodation industry

Did you know that the simple act of buying ENERGY STAR qualified televisions for hotel/motel rooms can result in significant energy and cost savings? ENERGY STAR qualified televisions save you money whether they are “OFF” or “ON.” Even when they are turned off, televisions continue to use electricity so they can be ready to receive a signal from a remote control (for more information on “standby power,” see page 25).

ENERGY STAR qualified televisions require 1 watt (W) or less of power in standby mode, compared to an average of 12 W for older standard televisions. They also consume about 30 percent less energy when in use than standard products. The next time you replace your facility’s television sets, consider the impact that buying ENERGY STAR qualified models could have on your utility bills.

And remember to look for other ENERGY STAR purchasing opportunities, such as lighting, room air conditioners, office equipment, bottled-water coolers and commercial clothes washers, dishwashers, refrigerators, freezers, ice makers and cooking equipment.



Attention school administrators

Have you considered ENERGY STAR qualified computers for your classrooms, computer labs and office areas? You will not only be saving money, but also sending an important message to students and staff about the need to use energy wisely. Schools also tend to be big users of copiers, so having an energy-efficient machine is important. In fact, why not include ENERGY STAR specifications in all of your tendering documents, including for electronics and appliances? Make sure to specify that the products’ energy-saving features must be enabled when shipped, as some manufacturers may not activate these features unless instructed to do so.

Attention municipalities and provincial/territorial governments

ENERGY STAR qualified office equipment, lighting, appliances and electronics can and should be standard equipment in government offices across Canada. It’s a great way to show good stewardship of taxpayers’ dollars and leadership in tackling climate change and air quality problems.

Attention hospital administrators

Office equipment, appliances, lighting, consumer electronics, commercial clothes washers, commercial cooking equipment, commercial dishwashers, commercial ice makers and heating, cooling and ventilation equipment all represent ENERGY STAR purchasing opportunities for hospitals. You will be amazed at the impact energy-efficient procurement can have on operating costs – and the money you save can go right back into improving patient care.



USING OFFICE EQUIPMENT WISELY

Buying ENERGY STAR qualified equipment is a sure way to reduce your office's energy consumption and GHG emissions. But it does not end there – how office equipment is used is also important. Here are some tips on how to get the most out of your equipment:

- **Plan:** Start by reviewing options for reducing the number of hours during the night that office machines must run (e.g. to receive software updates or perform off-hours processing tasks). If servers or computers must be left on overnight, activate ENERGY STAR energy management features and turn off monitors.
- **Educate:** Inform your staff about the importance of allowing computers and monitors to go into sleep mode during the day (see page 23). Also, remind staff to turn computers and monitors off when they leave for the day (unless the computer must be left running for overnight tasks), and encourage them to make sure that copiers and printers are also turned off. It is important for staff to understand that frequently switching equipment on and off will not damage components.
- **Partner:** Work with information technology staff to ensure that computer and monitor power management features are fully enabled organization-wide (equipment is often shipped from the manufacturer with these features disabled).
- **Manage:** Minimize printing requirements by storing information electronically whenever possible. Manage equipment disposal responsibly to avoid sending old equipment to the landfill. Options include arranging a trade-in with the supplier of the new equipment, donating used equipment to local schools or community groups, or finding a recycler who will deal with the waste equipment in an environmentally responsible manner.

Importance of office equipment with “sleeping” capabilities

Sleep mode is the reduced power state that certain office equipment enters after a period of inactivity. Although all ENERGY STAR qualified computer systems are required to have power management capabilities, in many cases these energy-saving features are deactivated when the equipment is shipped from the manufacturer.

In one facility that was sampled, fewer than 2 percent of 500 systems had the power management features enabled. After the problem was corrected, energy savings neared 50 000 kWh annually, or more than \$1,000 per year. The lesson here is simple – when buying office equipment, make sure it is ENERGY STAR qualified and activate the power management features after its delivery and/or reconfiguration.

The following types of ENERGY STAR qualified office equipment have sleep mode functions:

- **Computers:** Desktop computers consume no more than 4 W in sleep mode and 2 W in deep-sleep mode; laptops use no more than 1.7 W in sleep mode and 1 W in deep-sleep mode. (For more information on computer power management modes, see the box on page 24.)
- **Monitors:** Monitors consume no more than 2 W in sleep mode and 1 W or less in deep-sleep mode.
- **Imaging equipment:** Some printers, fax machines, copiers, scanners and multifunction devices consume no more than 1 W in standby mode. For some products, sleep mode requirements range from less than 1.4 W to more than 30 W, depending on machine size and marking technology.

How much power does a computer use?

The typical electricity consumption of a personal desktop computer and a 17-inch cathode ray tube monitor over 24 hours is

- left on – 3360 watt-hours (Wh) (computer without power management features enabled)
- in deep sleep mode – 720 Wh (ENERGY STAR qualified computer and monitor with power management features enabled) turned off – 48 Wh

Using power management features can reduce your organization's electricity costs by \$25 to \$75 a year, per computer. Computers that operate in sleep mode much of the time also run cooler – potentially reducing air-conditioning loads – and last longer. ENERGY STAR qualified computers can also reduce noise from fans and power supplies for monitors compared with conventional products.

For more information on computer/monitor power management, visit www.energystar.gov/index.cfm?c=power_mgt.pr_power_management.

Information on power management software options for larger organizations is available at www.bchydro.com/business/investigate/investigate10036.html.

What are the differences between power-saving modes of ENERGY STAR qualified computers?

Industry definitions of power use vary from one type of product to another. For computers, there are four modes of power management, as follows:

- **Idle mode:** when the operating system has completed loading and only basic, default applications are running. The system consumes less power than when actively being used.
- **Sleep mode:** when the computer enters a low-power state after a period of inactivity, but almost immediately resumes operation when activity is detected (e.g. movement of the mouse). Less power is consumed than in idle mode.
- **Deep-sleep mode:** when the computer enters an even lower-wattage operating mode after an extended period of inactivity. This is when the system consumes the least amount of energy without being turned off.
- **Standby mode:** when the computer is turned off by the user but continues to use power because it is still connected to a power source.

DID YOU KNOW ...

New specifications make it tougher to qualify for ENERGY STAR. Desktop computers must be at least 80 percent efficient in active mode (non-qualified models are typically only 65 to 70 percent efficient). A laptop computer must have an ENERGY STAR qualified external power supply that is, on average, 35 percent more energy efficient than a conventional model. Both types of systems must also meet strict criteria for energy consumption in sleep and standby modes.

Standby power – When “off” means “on”

Even when turned “off,” many types of equipment continue to use electricity – referred to as standby power – to operate features such as clocks, timers and touch pads, or to receive signals from remote controls. These include home electronics, appliances (e.g. microwaves and coffee makers with clocks) and even lights and blinds that can be operated by remote controls. Battery chargers (e.g. cellphones and PDAs) and external power supplies (e.g. laptop computers) also draw power when they are plugged in – even if the device they power is fully charged or disconnected.

Although the standby power consumption of most devices is relatively small, it can add up when you consider how many devices in your office or business are drawing standby power 24 hours a day, seven days a week. However, there are ways to take control of these “energy vampires.”

The only way to guarantee that an electronic device is not drawing power is to unplug it from the outlet. One easy way to do this is to connect several pieces of equipment (such as a computer, monitor, printer and scanner) to a single power bar. By turning off the power bar when the equipment is not needed, you cut the supply of electricity

and eliminate standby power consumption. Choosing a power bar with surge protection will protect your equipment from surges, spikes and other fluctuations in electrical current. Unplug battery chargers and external power supplies when they are not being used.

DID YOU KNOW ...

- Studies have shown that standby power accounts for 10 percent of electricity use in a typical Canadian home.
- Standby power consumption is expected to continue to grow in the years ahead as equipment becomes more sophisticated and people and organizations acquire more gadgets.

DID YOU KNOW ...

Screen savers will cause a monitor to consume the same amount of power as when it is running normally. The best way to protect the screen – and to save electricity at the same time – is to enable the computer’s power management feature to turn off the monitor after a certain period of inactivity.

Sample procurement language for office equipment

Sample procurement language for ENERGY STAR qualified office equipment is available on the ENERGY STAR Web site at www.energystar.nrcan.gc.ca. In addition to specifying ENERGY STAR qualified products, the language can help ensure that the equipment you purchase is delivered with the power management features enabled.

- In lease and maintenance agreements, sample procurement language can be used to ensure that power management features are configured to meet the most current ENERGY STAR specifications at the time of service.
- Sample procurement language can be used to ensure that copiers have a duplex capability that is set in default mode when the product is shipped. Making double-sided copies reduces paper consumption, saves money and helps prevent air pollution.

DID YOU KNOW ...

- Data centres account for 1 percent of electricity use in Canada.
- About half of the electricity used in a data centre is used by servers – the rest is used for auxiliary equipment such as lighting and heating, ventilating, and air conditioning (HVAC).

Purchasing ENERGY STAR qualified servers is an important step in making your data centre more energy efficient (see the Web site at energystar.nrcan.gc.ca for information). Other possible actions include

- using the power management features of individual units
- using high-efficiency uninterruptible power supplies and power distribution systems and efficient redundancy
- exploring energy-efficient cooling options (free cooling, high-efficiency chillers, efficient chilled water systems, direct liquid cooling and cooling optimization)
- installing efficient air flow management and control systems
- using efficient humidification systems
- using variable frequency drives for HVAC fans
- consolidating servers (virtualization software and physical hardware consolidation) and using energy-efficient data storage
 - installing more energy-efficient lights to help reduce the cooling load; also, turning off lights when data centre operators are not present

Consider contracting a specialized consultant to help you reorganize your data centre to save energy and money while maximizing performance.



LOOKING FOR A GREAT VIEW? TRY ENERGY STAR QUALIFIED WINDOWS, DOORS AND SKYLIGHTS!

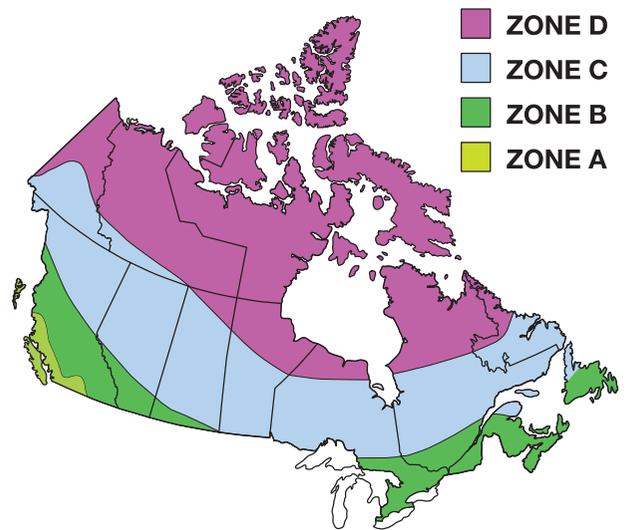
Fenestration products (windows, doors and skylights) can be significant sources of heat loss. Properly installed ENERGY STAR qualified fenestration products will save money on your heating and cooling costs and will give you a great view of the outdoors.

Keep in mind that the ENERGY STAR criteria for fenestration products have been developed primarily for products that are installed in buildings of three or fewer stories and that are used for residential or light commercial purposes.

Although it is recommended that windows, doors and skylights installed in other types of buildings (industrial and high-rise residential/commercial buildings) be energy efficient, the ENERGY STAR symbol cannot be used to select the top energy performers among products manufactured for these types of applications.

To choose an ENERGY STAR qualified fenestration product, determine the zone where your building is located and select a product that is qualified for that zone. (Canada has been divided into four climate zones for ENERGY STAR qualification purposes.) The climate zones for which a specific window, door or skylight is ENERGY STAR qualified is shown on a label such as the one below, which may appear on the product or in its sales literature.

Many products will qualify for more than one zone in Canada. Zone A is the mildest region in Canada and Zone D is the coldest region. If your building is in a location that is significantly higher in elevation than the surrounding area, it is recommended that the product chosen be qualified to at least one zone colder than what is indicated on the zone map. Also, it is important to remember that if you choose a product that is qualified for one or more zones that are colder than where your building is located, you can save even more on your energy costs.



*To the left is an example of a label that indicates that the fenestration product is ENERGY STAR qualified for Zones **A**, **B** and **C**.*

ENERGY STAR requirements for windows and doors

Different qualifying levels have been set for each climate zone in Canada. Products may comply based on either their U-value or their Energy Rating (ER). Windows and sliding glass doors must also have an air leakage rate of $<1.65 \text{ (m}^3\text{/h)/m}$.

Zone	Maximum U-value (W/m ² •K)	Maximum U-value (Btu/h•ft ² •°F)	Minimum R-value (ft ² •h•°F/Btu)		Minimum Energy Rating (most windows and all doors)		Minimum Energy Rating (picture windows only)	
					(Maximum U-value 2.00 W/m ² •K)		(Maximum U-value 2.00 W/m ² •K)	
					1998 Standard (W/m ² •K)	2004 Standard* (dimensionless)	1998 Standard (W/m ² •K)	2004 Standard* (dimensionless)
A	2.00	0.35	2.9	or	-16	17	-6	27
B	1.80	0.32	3.2	or	-12	21	-2	31
C	1.60	0.28	3.6	or	-8	25	+2	35
D	1.40	0.25	4.0	or	-5	29	+5	39

*The methodology used to calculate Energy Ratings, as defined by the Canadian Standards Association, was changed in 2004. Under the new standard, all windows and doors have positive ER numbers.

DID YOU KNOW ...

ENERGY STAR qualified windows, doors and skylights have many of the following features:

- double or triple glazing with a sealed insulating glass unit
- low-emissivity (low-e) glass
- inert gas, such as argon or krypton, in the sealed unit
- low-conductivity spacer bars
- insulated frames, sashes and door cores
- good airtightness



SEE THE LIGHT WITH ENERGY STAR QUALIFIED LIGHTING PRODUCTS

Lighting represents a major operating cost for building owners and operators – but once again, ENERGY STAR is here to help.

Replacing conventional lighting with ENERGY STAR qualified CFLs should be at the top of your list. ENERGY STAR qualified CFLs produce the same light output as regular incandescent bulbs, but use only one third of the energy. In addition to their impressive energy savings, ENERGY STAR qualified CFLs are rated to last up to 10 times longer than regular incandescent bulbs, making frequent bulb changes a thing of the past – a real bonus for heavy-use areas and hard-to-reach fixtures.

Imagine if you retrofitted a building, replacing 2000 100-W incandescent lamps with an equivalent number of 23-W CFLs. Assuming the lights are on 12 hours per day, your estimated net cost savings (at \$0.10/kWh) could be up to \$67,000 per year (365 days) as a result of the low energy consumption of the CFLs and reduced maintenance costs due to the long life of these products.



The Government of Canada has committed to introduce national standards for lighting efficiency by 2012. This will result in the phase-out of inefficient lighting in common applications, which in turn will mean significant cost savings for businesses and consumers and important environmental benefits in the form of reduced GHG emissions. This is one more reason to start replacing conventional incandescent bulbs with ENERGY STAR qualified CFLs or other high-efficiency lamps, such as light-emitting diodes (LEDs).

DID YOU KNOW ...

- CFLs come in many shapes, sizes and styles. New designs mean these energy-efficient bulbs will fit in virtually any light fixture.
- Current CFLs are twice as efficient as required in the new 2012 standard.
- The 2012 standard will include different technologies for general illumination applications. Speciality products (oven lamps, bug lights, etc.) are exempted.

Look for ENERGY STAR qualified fixtures too!

Buying energy-efficient fixtures is another great way to control lighting costs and help the environment.

The ENERGY STAR specification for light fixtures covers indoor and outdoor fixtures and recessed downlight retrofit kits intended primarily for residential applications, such as single-family and multi-family dwellings, dormitories, public or military housing, assisted-living facilities, motels and hotels, and for some light commercial applications.



ENERGY STAR qualified residential light fixtures deliver the same bright light as standard fixtures but use about 66 percent less energy. Organizations such as housing authorities and property management groups can achieve significant energy savings by replacing traditional incandescent fixtures with ENERGY STAR qualified models.

To learn more, consult the ENERGY STAR Residential Light Fixture specification at www.oeenrcan.gc.ca/residential/business/manufacturers/light.cfm?attr=12#rlf.

Lighting the way beyond ENERGY STAR

Some lighting technologies are not included in the ENERGY STAR program in Canada but still offer significant energy efficiency benefits.



For example, many commercial and institutional buildings use fluorescent tube systems (comprising both lamps and ballasts) to light their hallways, workspaces and storage areas. These systems are energy efficient but keep in mind that there are different types.

T8 lamp systems

Replacing traditional T12 lamp systems with T8 lamp systems with electronic ballasts yields greater energy savings and better lighting. But did you know that T8 premium or super lamp systems are available that are even more efficient? These systems deliver energy savings of 30 to 50 percent compared with older T12s, and up to 25 percent relative to standard T8s. Ballasts are available in 120 V, 277 V and 347 V configurations.

T5 lamp systems

These smaller T5 systems are ideal for retrofitting some high-bay lighting areas because they provide excellent lighting at lower operational costs than other types of high-bay lights. New generation T5 HO (High Output) lamps can last up to 100 000 hours.

What's new?

Wireless lighting controls offer the potential to incorporate energy-saving strategies – such as occupancy sensing, daylight harvesting and personal control – into existing lighting systems. Wireless controls eliminate the need to run wiring, which can be costly and disruptive to day-to-day operations. Methods have been developed to simplify the use and maintenance of wireless control systems, such as battery-free technology for sensors and switches.

LED: Newest kid on the block

In recent years, huge advances have been made in developing one of the most promising new lighting technologies available on the market: LED, or light-emitting diode. LEDs are extremely energy efficient: they can reduce energy consumption and costs by 90 percent compared to those of an incandescent bulb. They are also long-lasting, durable and compact, and produce highly visible light. LEDs offer low heat dissipation, are available in a variety of colours, and are suitable for year-round outdoor use.

LEDs have already become the Canadian standard for traffic signals, exit signs and decorative lights:

- LED technology used in traffic and pedestrian signals consumes only 8 to 17 W, depending on the colour and size of the signal. Making the switch from conventional signals to LED signals reduces energy consumption by 80 to 90 percent. LEDs also last up to 10 years, compared to only 2 years for conventional lights.
- LED exit signs use 90 percent less electricity than conventional exit signs, operate for less than \$1.87 per sign annually, and last up to 25 years. The payback period for switching to LED exit signs is only one year.
- LED decorative light strings use up to 95 percent less energy than comparable incandescent lights, and are more durable and shock-resistant. LEDs also produce very little heat, reducing the risk of fire. LED is the only technology that currently meets the ENERGY STAR specification for decorative light strings.



ENERGY STAR has introduced a new program for LEDs used for direct lighting applications such as under-cabinet lights. As LED technology is developed for general lighting at a reasonable cost for the consumer, it will be included in the ENERGY STAR program.

ADDITIONAL INFORMATION

Resources for green procurement

Public Works and Government Services Canada – Office of Greening Government Operations

The Office of Greening Government Operations maintains an extensive Web site on federal green purchasing requirements, policies, activities, resources and training opportunities. For more information on how OGGO can help your department or agency, visit www.tpsgc-pwgsc.gc.ca/ecologisation-greening/index-eng.html.

Clean Air Partnership

Working in partnership with utilities, schools, businesses, governments and community groups in the Greater Toronto Area, the Clean Air Partnership develops and delivers local market and community-based strategies to reduce energy use and clean the air as part of the effort to achieve healthy and sustainable local communities. Of particular note is the Clean Air Partnership's ENERGY STAR Procurement Toolkit for Municipalities, which assists municipalities and other organizations in using ENERGY STAR to implement energy-efficient purchasing. For more information, visit the Clear Air Partnership Web site: www.cleanairpartnership.org.

Environmental Choice Program

If you are looking for products that feature excellent environmental performance in addition to energy efficiency, the Environmental Choice Program is a perfect resource. The program has certified more than 3000 products and services with its EcoLogo^M multiattribute environmental certification label. For more information, visit www.ecologo.org.

Governments Incorporating Procurement Practices which are Environmentally Responsible

Governments Incorporating Procurement Policies which are Environmentally Responsible (GIPPER) is an environmental purchasing association. G.I.P.P.E.R.'s *Guide to Environmental Purchasing* helps purchasers incorporate environmental considerations in the procurement process. The document describes methods for doing this, including the application of environmental criteria to target product categories. To view the guide, visit www.pmac.ca/PDF/gipper.pdf.

City of Richmond's green purchasing guide

In November 2000, the City of Richmond, British Columbia, adopted the Environmental Purchasing Policy and *Environmental Purchasing Guide*, which are designed to increase awareness of and market development opportunities for environmentally preferred products and services. The guide advises that the environmental characteristics of goods and services be considered when making purchasing decisions. Visit www.richmond.ca/services/Sustainable/environment/policies/purchasing.htm.

Sustainability Purchasing Network

The Sustainability Purchasing Network supports organizations in their efforts to develop and improve sustainability purchasing practices. The Network is a source of research, information, networking, training and business-to-business projects on sustainability purchasing. For more information, visit www.buysmartbc.com.

RECOGNITION PROGRAMS

Canada's ENERGY STAR Market Transformation Awards

These awards recognize companies and organizations that have surpassed the competition in offering Canadian consumers the most energy-efficient product, technology or service available on the market. Awards are available for manufacturers, retailers, utility companies, institutions and government and non-government organizations. For more information, visit www.oeenrcan.gc.ca/corporate/awards.cfm.

Canada's Existing Buildings Awards

These awards recognize commercial and institutional organizations that have made outstanding efforts to save energy in existing buildings. For more information, visit www.oeenrcan.gc.ca/corporate/awards.cfm.

Canadian Industry Program for Energy Conservation Leadership Awards

The Canadian Industry Program for Energy Conservation (CIPEC) Leadership Awards celebrate the achievements of Canadian industrial companies that have demonstrated exceptional leadership and innovation in the pursuit of energy efficiency. Awards are available in the following categories: process and technology improvements; employee awareness and training; corporate stewardship; monitoring and tracking; and implementing an integrated energy efficiency strategy. For more information, visit www.oeenrcan.gc.ca/corporate/awards.cfm.

Leadership in Energy and Environmental Design

The Leadership in Energy and Environmental Design® (LEED) Green Building Rating System recognizes buildings that incorporate design, construction and operational practices that combine healthy, high-quality and high-performance advantages with reduced environmental impacts. LEED® consists of a set of criteria on what constitutes a green building in the Canadian context. Building performance is certified with ratings – Silver, Gold or Platinum – based on the number of points earned. LEED® is managed by the Canada Green Building Council. For more information, visit www.cagbc.org.

FOR MORE INFORMATION

Natural Resources Canada's Office of Energy Efficiency has free publications that will help you understand how to save energy at home, at work and on the road. At the same time, you will be saving money and helping the environment.

For more information on the ENERGY STAR international symbol or tips on energy-efficient products, visit OEE Web sites at www.oeenrcan.gc.ca and www.energystar.nrcan.gc.ca.

For free publications, contact:

Energy Publications

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Natural Resources Canada's Office of Energy Efficiency

Leading Canadians to Energy Efficiency at Home, at Work and on the Road

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